## **WHAT IS CLAIMED IS:**

1	1.	A lyophilized bead suitable for use in the amplification of a nucleic
2	acid sequence, said	l lyophilized bead comprising:
3	a thermally	stable enzyme; and
4	mannitol;	
5	wherein said lyoph	ilized bead has a weight percentage of said mannitol of between about
6	53% and about	75% (w/w).
1	2	The book like of head of claim 1 subscrip and complification occurs in a
1	2.	The lyophilized bead of claim 1, wherein said amplification occurs in a
2	reaction mixture co	omprising a volume of between about 5 μL and about 200 μL.
1	3.	The lyophilized bead of claim 1, further comprising a nucleoside
2	triphosphate or a d	erivative thereof.
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1	4.	The lyophilized bead of claim 1, wherein said lyophilized bead has an
2	average cross-secti	on of between about 1 millimeter and about 4.5 millimeters.
1	5.	The lyophilized bead of claim 1, wherein said weight percentage is
2	between about 62%	% and about 75% (w/w).
1	6.	The lyophilized bead of claim 5, wherein said weight percentage is
2	between about 68%	% and about 75% (w/w).
1	7.	The lyophilized bead of claim 1, wherein said thermally stable enzyme
2	is selected from the	e group consisting of polymerase, ligase, and combinations thereof.
1	8.	The lyophilized bead of claim 1, further comprising a hot start
2	methodology.	
1	9.	The lyophilized bead of claim 1, further comprising HEPES.
1	10.	The lyophilized bead of claim 1, further comprising a probe.
1	11.	The lyophilized bead of claim 1, further comprising a reverse
2	transcriptase.	, -p
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1	12.	The lyophilized bead of claim 1, further comprising an internal control.

2	acid sequence, said lyophilized bead comprising:		
3	a forward polynucleotide primer;		
4	a reverse polynucleotide primer; and		
5	mannitol;		
6 7	wherein said lyophilized bead has a weight percentage of said mannitol of between about		
′	53% and about 75% (w/w).		
1	14. The lyophilized bead of claim 13, wherein said amplification occurs in		
2	a reaction mixture comprising a volume of between about 5 $\mu$ L and about 200 $\mu$ L.		
1	15. The lyophilized bead of claim 13, wherein said lyophilized bead has an		
2	average cross-section of between about 1 millimeter and about 4.5 millimeters.		
	The boundities of head of stains 12 and again acid assight managements as in		
1	16. The lyophilized bead of claim 13, wherein said weight percentage is		
2	between about 62% and about 75% (w/w).		
1	17. The lyophilized bead of claim 16, wherein said weight percentage is		
2	between about 68% and about 75% (w/w).		
1	18. The lyophilized bead of claim 13, further comprising HEPES.		
1	19. The lyophilized bead of claim 13, further comprising a probe.		
1	20. The lyophilized bead of claim 13, further comprising an internal		
2	control.		
1	21. The lyophilized bead of claim 13, wherein said nucleic acid sequence		
2	is selected from the group consisting of bacterial, fungal, and viral nucleic acid sequences.		
1	22. The lyophilized bead of claim 21, wherein said bacterial nucleic acid		
2	sequence is derived from a member selected from the group consisting of Bacillus Anthracis,		
3	Yersinia pestis, Clostridium botulinum, Francisella tularensis, Group B Streptococcus,		
4	Neisseria gonorrhoege Chlamydia trachomatis and Xylella fastidiosa.		

1		23.	The lyophilized bead of claim 21, wherein said viral nucleic acid
2	sequence is de	erived f	rom a member selected from the group consisting of Vaccinia, West
3	Nile Fever vii	rus, Equ	ine Encephalitis virus, and Foot and Mouth Disease virus.
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1		24.	A method for the amplification of a nucleic acid sequence, said method
2	comprising:		
3		(a) dis	solving a lyophilized bead in a liquid, wherein said lyophilized bead
4		compr	ises:
5			a thermally stable enzyme; and
6			mannitol;
7		where	in said lyophilized bead has a weight percentage of said mannitol of
8		be	tween about 53% and about 75% (w/w), thus forming a reaction
9		mi	xture; and
0		(b) sul	ojecting said reaction mixture to an amplification reaction.
1		25.	The method of claim 24, wherein said reaction mixture further
2	comprises a v	olume c	of between about 5 μL and about 200 μL.
1		26.	The method of claim 24, wherein said reaction mixture further
2	comprises a n	ucleosio	de triphosphate or a derivative thereof.
1		27.	The method of claim 24, wherein said thermally stable enzyme is
2	selected from	the gro	up consisting of polymerase, ligase, and combinations thereof.
1		28.	The method of claim 24, wherein said reaction mixture further
2	comprises a fo		polynucleotide primer.
-	comprises a re	·	printer.
1		29.	The method of claim 24, wherein said reaction mixture further
2	comprises a re	everse p	olynucleotide primer.
1		30.	The method of claim 24, wherein said reaction mixture further
2	comprises a pr		
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1		31.	The method of claim 24, wherein said reaction mixture further
2	comprises a n	ucleic a	cid comprising said nucleic acid sequence.

2	comprises HEPES.
1	33. The method of claim 24, wherein said reaction mixture further
2	comprises an internal control.
1	34. The method of claim 24, wherein said reaction mixture further
2	comprises a hot start methodology.
1	35. The method of claim 24, wherein said lyophilized bead has an average
2	cross-section of between about 1 millimeter and about 4.5 millimeters.
1	36. A method for the amplification of a nucleic acid sequence, said method
2	comprising:
3	(a) dissolving a lyophilized bead in a liquid, wherein said lyophilized bead
4	comprises:
5	a forward polynucleotide primer;
6	a reverse polynucleotide primer; and
7	mannitol; and
8	wherein said lyophilized bead has a weight percentage of said mannitol of
9	between about 53% and about 75% (w/w), thus forming a reaction
10	mixture; and
11	(b) subjecting said reaction mixture to an amplification reaction.
1	37. The method of claim 36, wherein said reaction mixture further
2	comprises a volume of between about 5 $\mu L$ and about 200 $\mu L$ .
1	38. The method of claim 36, wherein said reaction mixture further
2	comprises a nucleoside triphosphate or a derivative thereof.
1	39. The method of claim 36, wherein said reaction mixture further
2	comprises a probe.
1	40. The method of claim 36, wherein said reaction mixture further
2	comprises a nucleic acid comprising said nucleic acid sequence.

The method of claim 24, wherein said reaction mixture further

**32.** 

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. 1	41.	The method of claim 36, wherein said reaction mixture further
2	comprises HEPES.	
1	42.	The method of claim 36, wherein said reaction mixture further
2	comprises a thermall	
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1	43.	The method of claim 36, wherein said reaction mixture further
2	comprises an interna	l control.
1	44.	The method of claim 36, wherein said lyophilized bead has an average
2	cross-section of betw	veen about 1 millimeter and about 4.5 millimeters.
1	45.	A lyophilized bead suitable for use in the amplification of a nucleic
2		• •
3	acid sequence, prepared by a process comprising:  (a) creating an aqueous solution, said aqueous solution comprising:	
4	(a) or	a thermally stable enzyme; and
5		mannitol;
6	where	in said solution has a concentration of said mannitol between
7		0.38 M (moles of mannitol/liter of solution) and about 0.99 M
8		s of mannitol/liter of solution);
9	•	ick-freezing the product of (a); and
		• • •
10	(c) fre	eze-drying the product of (b).
1	46.	The lyophilized bead of claim 45, wherein the product of (c) has an
2	average cross-section	of between about 1 millimeter and about 4.5 millimeters.
	4-	
I	47.	The lyophilized bead of claim 45, wherein the product of (c) further
2	comprises a nucleosi	de triphosphate or a derivative thereof.
1	48.	The lyophilized bead of claim 45, wherein said thermally stable
2	enzyme is selected fr	om the group consisting of polymerase, ligase, and combinations
3	thereof.	
1	49.	The lyankilized head of alaim 45 wherein the medduct of (a) further
1		The lyophilized bead of claim 45, wherein the product of (c) further
2	comprises a reverse t	ranscriptase.

1	<b>50.</b> T	he lyophilized bead of claim 45, wherein the product of (c) further
2	comprises a hot start me	ethodology.
1	<b>51.</b> T	he lyophilized bead of claim 45, wherein the product of (c) further
2	comprises HEPES.	the Tyophinized bead of Claim 43, wherein the product of (c) further
2	comprises HEFES.	
1	<b>52.</b> T	he lyophilized bead of claim 45, wherein the product of (c) further
2	comprises a probe.	
1	<b>53.</b> T	he lyophilized bead of claim 45, wherein the product of (c) further
2	comprises an internal co	ontrol.
1	<b>54.</b> A	lyophilized bead suitable for use in the amplification of a nucleic
2		by a process comprising:
3	•	ng an aqueous solution, said aqueous solution comprising:
4		forward polynucleotide primer;
5		reverse polynucleotide primer; and
6		nannitol;
7		said solution has a concentration of said mannitol between
8		8 M (moles of mannitol/liter of solution) and about 0.99 M
9	·	f mannitol/liter of solution);
10	(b) quick	-freezing the product of (a); and
11	(c) freeze	e-drying the product of (b).
1	<b>55.</b> T	he lyophilized bead of claim 54, wherein the product of (c) has an
2		between about 1 millimeter and about 4.5 millimeters.
2	average cross-section of	between about 1 minimeter and about 4.5 minimeters.
1	<b>56.</b> T	he lyophilized bead of claim 54, wherein the product of (c) further
2	comprises a nucleoside t	riphosphate or a derivative thereof.
1		he lyophilized bead of claim 54, wherein the product of (c) further
2	comprises HEPES.	
1	<b>58.</b> T	he lyophilized bead of claim 54, wherein the product of (c) further
2	comprises a probe.	, F (e) 100 Miles
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1	59	<b>).</b>	The lyophilized bead of claim 54, wherein the product of (c) further
2	comprises an internal control.		
1	60	).	A lyophilized bead suitable for use in microanalytic systems
2	comprising:		
3			a moisture-sensitive reactant; and
4			mannitol;
5	wherein said lyophilized bead has a weight percentage of said mannitol of		
6		bet	ween about 53% and about 75% (w/w); and
7	wł	herei	n said lyophilized bead has an average cross-section of between about 1
8		mil	limeter and about 4.5 millimeters.
1	61	1.	The lyophilized bead of claim 60, wherein said weight percentage is
2	between about 62	2% ar	nd about 75% (w/w).
1	62	2.	The lyophilized bead of claim 60, wherein said weight percentage is
2	between about 68	8% ar	nd about 75% (w/w).